Ni Likun

Smart City & Mobility Data Analytics | Geospatial Data, Applied AI

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PROFILE

MSc candidate in Data Science for Sustainability at the National University of Singapore, with experience in geospatial data engineering, human mobility analysis, urban-context and POI feature construction, and evidence-grounded LLM agents. Interested in applying multi-source urban data and AI to improve how cities are planned and operated, including transport and road-network planning, pedestrian-flow management, and location or route recommendation. Experienced across ETL, spatial joins, trajectory processing, model evaluation, and research-to-product communication. Seeking smart-city, mobility analytics, and geospatial intelligence roles in Singapore.

EDUCATION

National University of Singapore, Singapore Aug 2026 - Present (Expected Jul 2027)
MSc in Data Science for Sustainability

Southern University of Science and Technology, Shenzhen, China 2022 - 2026
BSc in Statistics | Outstanding Thesis: Machine Learning-Based Community Detection in Scientific Collaboration Networks

EXPERIENCE

Institute of Data Science (IDS), National University of Singapore, Singapore 15 Sep 2026 - Present
Research Assistant - Mentor: Prof. Ng See Kiong

- Contribute to research on spatiotemporal data mining and smart-city (Simulation & AI) applications.

LocationMind Inc., Tokyo, Japan Jul 2025 - Mar 2026
Development Intern

- Built ETL inputs for multidimensional geospatial datasets, covering ingestion, cleaning, transformation, and analysis reporting.
- Joined urban, socioeconomic, and infrastructure layers to produce commercial POI location features; compared mobility-prediction and spatial-analytics methods for product and architecture reviews.
- Benchmarked large multimodal models on spatial reasoning with satellite imagery and geographic context.

Information Technology Center (ITC), The University of Tokyo, Chiba, Japan Mar 2025 - Aug 2025
Collaborative Research Assistant - Mentor: Prof. KOBAYASHI-HILL Hiroki

- Drove early-stage research on an LLM-agent system for human mobility prediction, from scoping the research question and designing the initial workflow to prototype implementation and feasibility experiments.
- Reviewed and presented recent literature in lab seminars, synthesised research directions, and contributed to cross-disciplinary discussions and exploratory collaborations spanning human mobility, LLM agents, and medical AI.
- Independently collected and structured 1.8 million Japanese horse-racing records covering approximately 270,000 races, and constructed a pedigree network with over 100,000 nodes to explore large-scale relational data analysis.

SELECTED PROJECTS

Towards Efficient and Evidence-Grounded Mobility Prediction with LLM-Driven Agent Mar 2025 - Aug 2025

- Investigated whether an LLM-driven agent could complement sequence-based mobility models by incorporating semantic travel intent and geographic context into next-location prediction.
- Combined a history-based fast path for routine cases with tool-assisted reasoning for ambiguous cases, using recent context, historical behaviour, stay/move likelihood, and candidate-location profiles as evidence across 3 mobility datasets.
- Built and validated the initial Python pipeline from trajectory preprocessing and context construction to API-based LLM/RAG tool calls and experiment evaluation; analysed failure cases and documented directions for later optimisation.
- **Team outcome:** The final system raised BW top-1 accuracy from 60.05% to 71.42% and cut mean location error from 3.44 km to 2.20 km; https://arxiv.org/abs/2606.05130.

MACA-PA: Modular Agent-Based Clinical Assistant for Perioperative Anesthesia Nov 2025 - Jan 2026

- Supported a locally deployable multi-agent and RAG clinical assistant; a root agent routed tasks to specialised agents for clinical summaries, CRF generation, and medical-history classification.
- Designed publication-ready workflow diagrams covering task routing, local-RAG prompt assembly, and coordination among specialised agents.
- Edited and rewrote manuscript sections to improve technical clarity, clinical terminology, and consistency across system description and figures; published at ACM HIDA 2026.

Scientific Collaboration Network Analysis, SUSTech Sep 2024 - Jan 2025

- Used embedding-based representations to explore potential gender differences in research-field patterns and related dimensions among researchers with comparable research performance.

LLM-Based Entity Extraction and Collaboration Networks, The University of Hong Kong Jul 2024 - Sep 2024

- Used an LLM to extract entities and relationships from news reports published during the COVID-19 pandemic and construct a collaboration network.

SKILLS

Geospatial & Mobility: QGIS, spatial joins, GPS/POI analysis, spatiotemporal features, mobility data
Data Analytics: Python (pandas, NumPy, NetworkX), SQL, ETL, data cleaning, feature construction, model evaluation
AI Agent: LLM workflows, tool calling, prompt design, model evaluation, comparative benchmarking
Documentation & Collaboration: workflow diagrams, technical writing, research synthesis, analytical reporting
Product & Research: technical evaluation, comparative benchmarking
Languages: Chinese (native), Japanese (JLPT N1), English (IELTS 6.5)

SELECTED PUBLICATIONS

Jiang, Y., Ma, C., Xu, Z., Mu, D., **Ni, L.**, et al. “MACA-PA: A Modular Agent-Based Clinical Assistant for Perioperative Anesthesia.” *HIDA 2026*, ACM, 2026. doi:10.1145/3819113.3819136.